

Miscellaneous

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UDC 661.666:541.7

KASATOCHKIN, V. I., KAZAKOV, M. Ye., SAVRANSKIY, V. V., NABATNIKOV, A. P.,
and RADIMOV, N. P., Institute of Fossil Fuels, Moscow

"Synthesis of New Allotropic Forms of Carbon From Graphite"

Moscow, Doklady Akademii Nauk USSR, Vol 201, No 5, 1971, pp 1104-1105

Abstract: During the exposure of pyrographite platelet to a laser beam intense evaporation and melting of carbon with the formation of craters at the point of decreasing rays was observed. The results of studies on the nature of the carbon condensed from carbon vapors are given. The carbon vaporizing from the platelets of carbon was precipitated as a silvery-white layer surrounding a thin layer of black carbon precipitate. In the experiments a heterogeneous laser was used with impulse energies of 250 and 500 joules in a free generation with an impulse length 1×10^{-3} sec. The density of the silvery-white carbon was found to be 2.48 g/cm^3 . The specific electroconductivity of the carbon layer was about one ohm $\cdot \text{cm}^{-1}$. X-ray diffraction showed a polycrystalline structure for the silvery-white carbon film with an average crystal size of 10^{-5} cm . X-ray diffraction of the black carbon was characteristic of a highly dispersed material with an eroded diffraction zone. Comparison of interplanar distances for the precipitated carbon with
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KASATOCHKIN, V. I., et al., Doklady Akademii Nauk USSR, Vol 201, No 5, 1971, pp 1104-1105

those of the cubic and hexagonal modifications of diamond and hexagonal and rhombohedral graphite showed that the silvery-white carbon obtained was a new allotropic crystalline form of carbon.

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USSR

UDC 621.771.8

CHARUKHINA, K. Y^a., GOLOVANENKO, S. A., MASTEROV, V. A., and KAZAKOV, N. F.

"Bimetallic Joints"

Bimetallicheskiye Soyedineniya [English Version Above], Moscow, Metallurgiya Press, 1970, 280 pp

Translation of Annotation: An analysis is made of the processes of formation of bonds, and the structure and properties of bimetallic joints produced by combined rolling, pressing, diffusion welding in a vacuum, and other methods of joining metals in the solid phase. The structural state of many bimetallic joints widely used in industry and promising for new branches of technology is analyzed.

The book is intended for engineering and technical workers in metallurgy, machine building, electronics, electrical engineering, and other branches of industry. It may also be useful to university students. 113 figures; 48 tables; 254 bibliographic references.

Introduction
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CHARUKHINA, K. Ye., et al., Bimetallicheskiye Soyedineniya, Moscow, Metallurgiya Press, 1970, 280 pp

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CHARUKHINA, K. Ye., et al., Bimetallicheskiye Soyedineniya, Moscow, Metallurgiya Press, 1970, 280 pp

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USSR

UDC: 621.396.6.72:621.791

ZOTOV, B. M., KONYUSHKOV, G. V., KAZAKOV, N. F.

"Diffusion Welding of Metal-Ceramic Joints"

Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific and Technical Collection. Technology and Organization of Production), 1970, vyp. 5 (37), pp 9-14 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V257)

Translation: The authors investigate the effect which parameters of the diffusion welding process, phase composition and pretreatment of polished high-clay M-7 ceramic have on the quality of welded joints with copper. It is found that preliminary annealing of the ground ceramic improves the quality of the welded joints. The optimum parameters of the diffusion welding process are determined. Resumé.

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UDC 621.791.1:546.26-162:546.821

KAZAKOV, N. F., KRYUCHKOVA, V. P., ZAZOVSKIY, D. G., and VERNYY, V. A.

"Graphite and Titanium Diffusion Welding in a Vacuum"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 71, pp 70-71

Abstract: Results are given of experiments designed to ascertain the optimal modes of welding titanium to graphite. Specimens of the two original metals measured 80 x 50 x 20 mm for Ti and 50 x 50 x 20 mm for the graphite, and were welded together in the SDVU-8M diffusion vacuum machine at a temperature of 1100° C obtained from an LZ-67 high-frequency oscillator with an output power of 60 kW and a frequency of 60-74 kHz. The temperature was controlled by a KHA thermocouple. Metallographic analysis after the welding process was completed showed that complete melting occurred at the point of contact of the metals, and that damage resulting from the mechanical testing was restricted to the graphite. The low resistance to a d-c current passed through the weld indicated its high quality.

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UDC: 621.373:530.145.6

USSR

MUSIN, R. A., KAZAKOV, N. F.

"Investigation of Contact Interaction of Sulfide Ceramic With Metals, and Development of a Technique for Joining Them"

V sb. Progressivn. tekhnol. i novoye oborud. dlya proiz-va elektron. priborov
(Progressive Technology and New Equipment for Production of Electronic Devices), Saratov, 1970, pp 92-94 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D321)

Translation: The authors investigate the possibility of producing vacuum-tight output apertures for optical instruments from polycrystalline zinc sulfide by the method of diffusion welding in a vacuum in the 750-850°C temperature range. As a preliminary step, a thermodynamic analysis is made of the possibility of chemical interaction in the system "ZnS-metals". In order to determine the stability of the resultant sulfides, an analysis is made of data on vapor pressure and dissociation pressure. Studies of the contact interactions of cylindrical specimens of iron, nickel, copper and stainless steel showed that these interactions take place only on the edges of the specimens, i. e. in regions where the gaseous reaction product can escape. The nature of contact interactions was studied during the production of the ceramic

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MUSIN, R. A., KAZAKOV, N. F., Progressivn. tekhnol. i novoye obrud. dlya
proiz-va elektron. priborov, Saratov, 1970, pp 92-94

by hot pressing with simultaneous welding to the metal. This method assures interaction over the entire area of the specimen from the very beginning of the process as well as a comparatively narrow diffusion zone. The new method is used to produce vacuum tight joints of zinc sulfide with Armco iron and Kovar. The new technique can be used to make vacuum-tight aperture structures. A. K.

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AN 0032389

UR9019

TITLE-- CAPTION

NEWSPAPER-- SOVETSKAYA LATVIYA, MARCH 13, 1970, P 1, COLS 7-8

ABSTRACT-- A PHOTOGRAPH SHOWS THE DIFFUSION VACUUM WELDING CHAMBER
"SDVU-36" FOR WELDING DISSIMILAR METALS AND METALS TO NONMETALS BY THE
METHOD DEVELOPED BY N. F. KAZAKOV. PATENTS HAVE BEEN ISSUED IN THE
U.S.A., BRITAIN, FRANCE, ETC.

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USSR

K UDC 621.791:539.378.001.5

KAZAKOV, N. F., Doctor of Technical Sciences, ANTONETS, D. P., Candidate of Technical Sciences, and GORELOV, V. A., Engineer

"Carbon Diffusion Into the Cladding Layer During Diffusion Welding in Vacuum"

Moscow, Svarochnoye Proizvodstvo, No 5, May 70, p 13

Abstract: Results are given of an investigation of the fusion zone of Kh18Ni10T steel with 12KhM steel in vacuum diffusion welding. The carburization zone in the cladding layer reaches 0.03-0.05 mm, and the decarburized zone of the base metal adjacent to the cladding layer is 0.15-0.20 mm deep. The zone adjacent to the boundary of the joint has a single-phase ferrite structure. In the cladding layer austenite is carburized and forms carbides along the boundaries of grains, and the main mass of the alloyed steel has a microstructure of austenite polyhedrons with a line inclusion of the δ -phase.

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UR9027

AUTHOR-- RUMYANTSEV, I., DIRECTOR, SCIENTIFIC-RESEARCH INSTITUTE OF CHEMICAL MACHINE CONSTRUCTION /SRICM/

TITLE-- THE EFFECT OF RESEARCH

NEWSPAPER-- VECHEARNYAYA MOSKVA, JANUARY 13, 1970, P 2, COLS 2-5

ABSTRACT-- THE ARTICLE IS A VERY BRIEF REVIEW OF THE ACTIVITIES OF THE SRICM. THE INSTITUTE IS THE LEADING ORGANIZATION IN THE FIELD OF MACHINE DESIGN FOR CHEMICAL INDUSTRY. IT GUIDES THE TECHNOLOGICAL POLICIES AND COORDINATES THE EFFORTS OF OTHER INSTITUTES AND PLANTS. THE FOLLOWING STAFF MEMBERS OF THE INSTITUTE ARE MENTIONED AS ACHIEVERS-- R. KAZAKOV, S. GDALIN, V. SEMENOV, YU. KIPRIANOV, YE. CHUVPILO, AND V. ZAVAROV. ALL ARE MEMBERS OF THE COMMUNIST PARTY.

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1/2 023 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--GEOCHEMICAL ASPECTS OF PETROLEUM MIGRATION IN THE BURISLAV OIL POOL
-U-

AUTHOR--(C3)-PORFIKYEV, V.B., KRAYUSHKIN, V.A., KAZAKOV, S.B.

COUNTRY OF INFO--USSR

SOURCE--DUPLOV. AKAD. NAUK UKR. RSR, SER. B 1970, 32(5), 398-400

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--PETROLOGY, GEOCHEMISTRY, PETROLEUM DEPOSIT, GEOGRAPHIC
LOCATION, CHEMICAL COMPOSITION, CRUDE OIL, NICKEL, VANADIUM, COPPER,
MAGNESIUM, IRON, LEAD, ZINC, SILVER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----F070/605060/F05 STEP NO--UR/0442/70/032/005/0398/0400

CIRC ACCESSION NO--AT0144415

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0144415

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMMON ORIGIN OF ALL OILS IN THE TITLE PCOL AND THE VERTICAL MIGRATION FROM SOURCE ROCKS INTO CORRESPONDING TRAP STRUCTURES WERE PROVEN BY GEOCHEM. STUDY OF OILS FROM 9 DEPOSITS. THE SET OF CHEM. ELEMENTS, CHARACTERIZING THE AT. SPECTRAL COMPN. OF ASHES FROM OILS, IS SIMILAR FOR ALL 9 PRODUCTIVE HORIZONS STARTING FROM OLIGOCENE FORMATIONS IN THE BORISLAV UNDERTHRUST TO MIOCENE RESERVOIR ROCKS IN BORISLAV ANTICLINE. NI, V, CU, CO, MG, FE, AG, PB, AND ZN, WHICH ARE PRESENT AS ORGANOMETALLIC COMPOS. OF PORPHYRIN TYPE, HAVE GENETIC CORRELATION SIGNIFICANCE, SUGGESTING THAT ALL OILS WERE DELIVERED INTO RESERVOIR ROCKS FROM/A SINGLE DEEP SEATED SOURCE ROCK.

FACILITY: INST. GEOL. NAUK, KIEV, USSR.

UNCLASSIFIED

1/3 031 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--ASH COMPOSITION OF CRUDE OILS FROM THE FRASNIAN STAGE OF PRIPYAT
BASIN -U-
AUTHOR--(03)-PORFIRYEV, V.B., KRAYUSHKIN, V.A., KAZAKOV, S.B.
COUNTRY OF INFO--USSR
SOURCE--DOPLV. AKAD. NAUK UKR. RSR. SER. B 1970, 32(2), 121-4
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION, CRUDE OIL, COMBUSTION
PRODUCT, CHEMICAL COMPOSITION, VANADIUM, ZINC, IRON, COBALT, CALCIUM,
SILVER, CHROMIUM, BARIUM, COPPER, LEAD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD7C/605060/E07 STEP NO--UR/0442/70/032/002/0121/0124
CIRC ACCESSION NO--AT0144401

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PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0144401

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELEMENTARY COMPN. OF ASH OBTAINED FROM CRUDE OILS OF 5 WELLS OF THE RECHITSA OIL FIELD AND OF A WELL OF THE OSTASHKOVITSE OIL FIELD, RECENTLY DISCOVERED IN THE PRIPYAT BASIN OF BELORUSSIA, IS TABULATED. THE D. OF THE RECHITSA PETROLEUMS VARIES FROM 0.852 TO 0.866, THE AV. TAR CONTENT IS 20 VOL. PERCENT, AND THE ASH CONTENT IS 0.0099-0.018 WT. PERCENT. THE D. OF THE OSTASHKOVITSE PETROLEUM IS 0.8200, THE TAR CONTENT 12 VOL. PERCENT AND THE ASH CONTENT 0.002 WT. PERCENT. THE MAIN COMPONENT OF THE ASH WAS NI; FROM 31.4 TO 63.5PERCENT IN RECHITSA SAMPLES, AND 28.7PERCENT IN THE OTHER. NEXT IN THE ORDER OF CONC. WAS NA; FROM 2.0 TO 25.1PERCENT IN THE RECHITSA SAMPLES, AND 21.5PERCENT IN THE OSTASHKOVITSE SAMPLE. CONCNS. OF V, ZN, FE, CO, AND CA VARIED IN MOST CASES FROM 1 TO 5.2PERCENT. ALSO PRESENT WERE AG (10-110 TIMES 10 PRIME NEGATIVE5PERCENT), AL (0.11-0.65PERCENT), BA (0.022-0.31PERCENT), CD (0.16-0.70), CR (0.07-1.07), CU (0.018-0.72PERCENT), LA (0.003-0.006PERCENT), MG (0.12-0.57 IN RECHITSA SAMPLES, BUT 3.4PERCENT IN THE OSTASHKOVITSE SAMPLE), MN (0.021-0.080PERCENT), MO (0.0016-0.0056), PB (0.029-0.10PERCENT), SI (GREATER THAN 3.0PERCENT IN ALL SAMPLES), SN (0.019-0.026PERCENT), SR (0.020-0.132PERCENT IN RECHITSA SAMPLES, BUT 0.25PERCENT IN THE OSTASHKOVITSE SAMPLE), TI (0.019-0.038PERCENT), AND ZR (0.0009-0.0016). BE WAS DETD. ONLY IN ONE OF THE RECHITSA SAMPLES (6.3 TIMES 10 PRIME NEGATIVE5PERCENT), WHILE BI WAS PRESENT IN ANOTHER RECHITSA ASH (9.2 TIMES 10 PRIME NEGATIVE4 PERCENT). THE V-NI RATIO VARIED FROM 0.0118:1 TO 0.95:1 IN THE RECHITSA SAMPLES, AND IT WAS 0.00453:1 IN THE OSTASHKOVITSE SAMPLE.

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PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0144401

ABSTRACT/EXTRACT--ALL OF FIVE PETROLEUMS STUDIED WERE CONSIDERED TO BE GENETICALLY RELATED AND DERIVED FROM A COMMON DEEP FORMATION POOL. ONLY BE, BI, MD, SN, AND ZR COULD NOT BE CONSIDERED AS THE INVARIABLE COMPONENTS OF THESE PETROLEUMS. GEOL. CROSS SECTIONS ARE REPRODUCED WHICH GIVE, TO A CERTAIN EXTENT, AND EXPLANATION OF THE ENRICHMENT OF THE CRUDE OIL IN THE ASH COMPONENTS DURING ITS MIGRATION. A CONNECTION WITH THE CARBONATE COLLECTORS OF THE SEMILUTSK-BUREG-VORONEZH HORIZON OF THE UPPER DEVONIAN FRANSIAN STAGE IS DISCUSSED AND CONSIDERED POSSIBLE. FACILITY: DERZH. NAUK.-DOSLID, PROEKT. INST. NAFTODOBUV. PROM., KIEV, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--GEOCHEMICAL COMPARISON OF CRUDE OILS FROM THE URYCH OIL FIELD -U-
AUTHOR--(03)-PONFIRYEV, V.B., KRAYUSHKIN, V.A., KAZAKOV, S. .
COUNTRY OF INFO--USSR
SOURCE--DOPOV. AKAJ. NAUK UKR. RSR, SER. B 1970, 32(4), 327-9
DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--CRUDE OIL, GEOCHEMISTRY, VANADIUM, NICKEL, OPTIC PROPERTY,
CHEMICAL COMPOSITION, GEOGRAPHIC LOCATION, PETROLEUM DEPOSIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/2005

STEP NO--UK/0442/70/032/004/0327/0329

CIRC ACCESSION NO--AT0133840

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0133840

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OIL IS PRODUCED FROM THE UPPER EOCENE AND PALEOCENE FORMATIONS IN THE TITLE FIELD. BOTH PETROLEUMS HAVE A NEARLY SIMILAR SET OF TRACE ELEMENTS IN THEIR ASHES, A V-NI RATIO OF 0.4 AND 0.6, D. OF 9.8707 AND 0.9735, RESIN CONTENT OF 16 AND 15.3PERCENT, ASH CONTENT OF 0.16686 AND 0.0107PERCENT, AND SIMILAR OPTICAL ACTIVITY. THE HIGHER ASH CONTENT IN EOCENE OILS WAS ATTRIBUTED TO A POSSIBLE SECONDARY ASSIMILATION OF ASH ELEMENTS FROM SEDIMENTARY FORMATIONS DURING MIGRATION OF OIL OVER A LONGER DISTANCE. ALL THIS INDICATED A SINGLE DEEP SEATED SOURCE FROM WHICH BOTH PETROLEUMS MIGRATED VERTICALLY ALONG THE FAULT ZONES. FACILITY: INST. GEOL. NAUK, KIEV, USSR.

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PA0046411

KAZAKOV, S.M.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

241531 BRIDGE WITH INDUCTIVELY LINKED ARMS FOR
MEASURING THE PARAMETERS OF IMPEDANCE contains
source of sinusoidal voltage (1), potential trans-
former (2), induction current comparator (3),
standard measure of effective resistance or of
reactance (4), converter (5), balance indicator (6)
with phase sensitive detectors reacting to square
components of the output current of measuring
circuit relative to voltage fed to their reference
(7). Impedance to be tested (8) is connected betw-
een the winding (9) of the potential transformer
(with m coils) and the current input (10) of the
converter (5) (with very small input resistance).
Current output (11) of the converter is connected

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Institut Avtomatiki i Elektrometrii Sibirskogo
Otdeleniya AN SSSR

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to winding (12) of comparator (with p coils) and potential output (13) to reference inputs (7) of phase sensitive detectors. Current input of balance indicator (6) is connected to output winding (14) of comparator (3). Standard measure (4) is connected to winding (15) of potential transformer (with n coils), whose input winding (16) is connected with output of voltage source (1) and with winding (17) of comparator (with q coils).

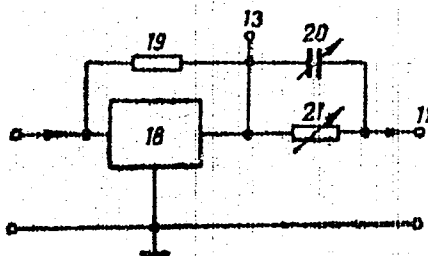
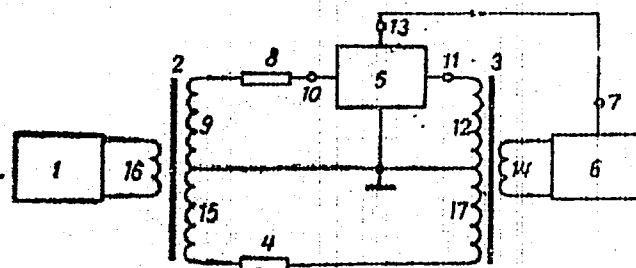
In use, the absence of non-balance signal on the output of one of the phase sensitive detectors corresponds to the bridge balance on the resistance component, and the absence on the output of the other phase sensitive detector corresponds to bridge balance on the reactance component.

24.1.68 as 1211708/18-10. S.M. KAZAKOV & B.N. PANTOV.
SIBERIAN AUTOMATION & ELECTROMETRY INST. (19.7.67)
Bul 14/18.4.69. Class 21e. Int.Cl.G 01 r.

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UDC: 621.317.733

KAZAKOV, S. M., MANTUSH, T. N., SUMITEL'NOV, V. N., Novosibirsk

"Designing High-Speed Phase-Sensitive Frequency-Range Detectors"

Novosibirsk, Avtometriya, No 3, 1970, pp 48-53

Abstract: The article deals with the problem of stabilizing the transfer constant of integrating phase-sensitive detectors for a continuous frequency range by proper selection of the integration time. The possibility of improving the metrological characteristics of the integrating detectors themselves is briefly discussed. The authors describe their own circuit for a phase-sensitive detector with integration by a whole number of half-periods. A block diagram of the device is given. The detector operates satisfactorily in a frequency range from a few dozen Hz to 100 kHz. The error in indication of a 90° shift varies from a few tenths of a degree to a few degrees at the end of the scale, which is acceptable even for high precision digital bridges. The authors thank candidate of technical sciences K. M. Sobolevskiy for his consideration and for his assistance in preparing this article.

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UDC 621.396.6.002:621.793(088.8)

KAZAKOVA, S. M., LAZDIN, V. P., BAZHEVA, T. P.

"A Heat Indicator Coating"

USSR Author's Certificate No 254826, Filed 6 Jul 68, Published 18 Mar 70 (from
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V295 P)

Translation: This Author's Certificate introduces a heat indicator coating which contains chromium oxide as a pigment, a copolymer of butyl methacrylate and methacrylic acid as binder, and butyl acetate as the solvent. As a distinguishing feature of the patent, a temperature of $95 \pm 2^\circ\text{C}$ is indicated by introducing as a basic temperature indicator 30-35 wt.% pyrogallol, 0.5-0.55 wt.% chromium oxide, 2.5-3 wt.% copolymer of butyl methacrylate with methacrylic acid, and enough butyl acetate to make up a mixture of 100 wt.%.

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USSR

UDC 621.3.049.75

K
KOPYLOV, S. G., KAZAKOV, S. N., YEGUNOV, A. V., KUZ'MICHEV, V. S., MELIK-
OGANDZHANYAN, P. B., IGNATOV, B. M., FEDOTOV, V. A., YAKOVLEV, YE. G.

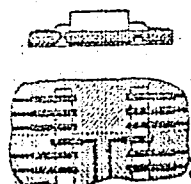
"Multilayer Printed Board"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarynye Znaki, No 16,
8 May 70, p 43, Patent No 270029, Filed 4 Mar 68

Translation: This Author's Certificate introduces a multilayer printed board containing alternating layers of dielectric and electrically conducting material designed for mounting integral circuits with flat leads in which grooves are cut out on both sides of the integral circuit. The interlayer connections are made in these grooves. They are executed by welding or soldering. The board is distinguished by the fact that in order to insure high density of arrangement of highly reliable interlayer connections with a minimum number of them and also to lower the labor involved in manufacturing the boards, the interlayer connections are executed in the form of bunches of printed conductors made during the process of pressing the multilayer printed board, and the number of bunches leading into the groove is determined by the number of leads of the integral circuits mounted on the board.

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KOPYLOV, S. G., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy,
Tovarnyye Znaki, No 16, 8 May 70, p 43, Patent No 270029, Filed 4 Mar 68



ACC. NR:

AP0036439

Ref. Code: UR 0213

PRIMARY SOURCE: Okeanologiya, 1970, Vol 10, Nr 1, pp 20-29

B. A. SHULYAK, S. M. ANTSEYEROV, S. P. KAZAKOV, N. K. KALININA
V. I. LAZAREV

THE DIFFERENTIAL CHARACTERISTIC OF THE ASYMMETRY OF ORBITAL
VELOCITIES OF THE INFINITE-LENGTH WAVE STREAM

Summary

The experimental methods to study phase and orbital velocities of gravity waves in a ring-shaped channel are discussed. Data are presented on the differential characteristic of the asymmetry of orbital velocities for both the ring-shaped and the linear channels. A good coincidence with the formulae of Stokes and Longuet-Higgins has been obtained for the bottom layer only at the phase points $\theta_1 = \frac{\pi}{2}$ and $\theta_2 = \frac{3}{2}\pi$. The experimental data for other phase points and in particular for $\theta_3 = \pi$, disagree with the theory.

REEL/FRAME
19721285

USSR

UDC 621.92

KAZAKOV, V. A.

"The Workability of the Hard Alloy T3OK4 by Abrasive Wheels"

Moscow, Izvestiya Vysshikh Uchebnikh Zavedeniy -- Mashinostroyeniye, No 2, 1973,
pp 136-138

Abstract: The results of investigations on the influence of the form of binder in abrasive wheels and the processing method on the quality of a cutting tool working surface made of the hard alloy T3OK4 are presented. This titanium-tungsten-cobalt alloy with a high titanium carbide content has a high friability and a tendency to crack. It was concluded that bakelite binders in the abrasive wheels give a better surface quality than ceramic. The recommended method and conditions of working are given for both binders.

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USSR

UDC 621.391.2

KAZAKOV, V. A.

"On the Problem of the Potential Resistance to Interference of Radio Receivers Subjected to White Noise and Markov Interference"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1973-1975

Abstract: A linear method is proposed for solution of the problem of determining the interference stability of an optimum receiver subjected to the process

$$x(t) = \lambda s(t) + n(t) + \eta(t),$$

at the input, where $s(t)$ is a deterministic signal, λ is a parameter which is equal to 0 or 1 respectively according as a signal is absent or present, $n(t)$ is white noise with the characteristics

$$\langle n(t) \rangle = 0, \langle n(t)n(t+\tau) \rangle = k_n(\tau) = \frac{N_0}{2} \delta(\tau);$$

$\eta(t)$ is Markov interference of diffusion type for which the relations

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USSR

KAZAKOV, V. A., Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1973-1975

$$\eta(t) = -\gamma\eta(t) + n_{\eta}(t); \langle n_{\eta}(t) \rangle = 0; \langle n_{\eta}(t)n_{\eta}(t+\tau) \rangle = \frac{N_{\eta}}{2}\delta(\tau)$$

are true. The author thanks G. Ye. Varshavskiy for assistance with the work. One figure, bibliography of five titles.

Beryllium

USSR

UDC 621.039.532.5

CHUCHETKINA, Z. I., GOL'TSEV, V. P., KAZAKOV, V. A., SERNYAYEV, G. A., and
BAZYUKIN, V. G.

"Radiation Damage to Beryllium by High-Temperature Irradiation"

Moscow, Atomnaya Energiya, Vol 30, No 5, May 71, pp 434-438

Abstract: Radiation damage to beryllium by high-temperature irradiation is aggravated by the fact that the atoms of helium and tritium forming in the irradiation process, by having sufficient diffusion mobility and by combining, form a nucleus of gas bubbles which under certain conditions may lead to significant swelling of the material and to changes in its mechanical properties.

This article is concerned with the experimental results of studying the physico-mechanical properties of beryllium following irradiation at various temperatures by an integrated fast neutron flux of $6 \cdot 10^{20}$ neutron/cm². The authors give six illustrations to demonstrate their findings.

On the basis of their study the authors make several conclusions. Radiation damage is manifested in beryllium in its swelling and hardening. The swelling attained in the process of irradiating beryllium depends to a large degree both on its structural state and on the temperature of the

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USSR

CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 30, No 5, May 71, pp 434-438

irradiation. The fused material in the entire investigated temperature range does not undergo substantial swelling. Materials hot-extruded from powder with dimensions less than 60 and 600 μ m do not undergo extensive swelling in the temperature range below 600° C. Hot-extruded materials begin to swell noticeably at a temperature of 600° C and continue to swell as the temperature of irradiation is elevated. A material, hot-extruded from powder with dimensions less than 600 μ m has a greater tendency to swelling than does a material obtained from a powder with dimensions less than 60 μ m.

The strength properties of beryllium depend to a very large degree on the irradiation temperature. Electron microscopic studies show that the characteristics of change in the properties of the materials correlate well with the characteristics of the behavior of the helium accumulated in them. The behavior of this same helium in materials prepared by various techniques is predetermined to a large degree by their structural states.

This article contains 6 figures and a bibliography of 6 titles.

2/2

- 13 -

USSR

K UDC 666.1:539.377

SILVESTROVICH, S. I., KAZAKOV, V. D., KATS, R. YA., Moscow
Institute of Chemical Technology imeni D. I. Mendeleev

"Features of Chemical Etching of the Surface of an Intensively
Hardened Glass"

Moscow, Neorganicheskiye Materialy, Vol 6, No 5, May 70,
pp 952-956

Abstract: The authors were interested in fine points of the chemical surface etching of glass with highly developed defects, such as occur on hardening when microcracks are formed. The selectivity of chemical surface etching of microlaminated glasses is determined by two phases of different resistance toward hydrofluoric acid action and by specific production conditions when they are subjected to various thermochemical actions. The glass strength, which is increased after chemical etching, is connected mainly with the presence of hazardous microcracks on its surface. When they are absent the strength is determined by the degree of microlamination and the quality of surface contour.

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- 24 -

1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--FEATURES OF CHEMICAL ETCHING OF THE SURFACE OF AN INTENSIVELY
HARDENED GLASS -U-
AUTHOR--(04)-SILVESTROVICH, S.I., KAZAKOV, V.D., KATS, R.YA., MENDELEYEV,
D.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. SSSR. MOSCOW, NEORGANICHESKIYE MATERIALY, VOL 6, NO 5, MAY
70, PP 952-956
DATE PUBLISHED----MAY 70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GLASS PROCESSING, HYDROFLUORIC ACID, GLASS STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1042

STEP NO--UR/0363/70/006/005/0952/0956

CIRC ACCESSION NO--AP0134745

UNCLASSIFIED

2/2 009
CIRC ACCESSION NO--AP0134745

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS WERE INTERESTED IN FINE POINTS OF THE CHEMICAL SURFACE ETCHING OF GLASS WITH HIGHLY DEVELOPED DEFECTS, SUCH AS OCCUR ON HARDENING WHEN MICROCRACKS ARE FORMED. THE SELECTIVITY OF CHEMICAL SURFACE ETCHING OF MICROLAMINATED GLASSES IS DETERMINED BY TWO PHASES OF DIFFERENT RESISTANCE TOWARD HYDROFLUORIC ACID ACTION AND BY SPECIFIC PRODUCTION CONDITIONS WHEN THEY ARE SUBJECTED TO VARIOUS THERMOCHEMICAL ACTIONS. THE GLASS STRENGTH, WHICH IS INCREASED AFTER CHEMICAL ETCHING, IS CONNECTED MAINLY WITH THE PRESENCE OF HAZARDOUS MICROCRACKS ON ITS SURFACE. WHEN THEY ARE ABSENT THE STRENGTH IS DETERMINED BY THE DEGREE OF MICROLAMINATION AND THE QUALITY OF SURFACE CONTOUR. FACILITY: MOSCOW INSTITUTE OF CHEMICAL TECHNOLOGY IMENI.

UNCLASSIFIED

Thin Films

USSR

UDC 669.1:539.216.2

KAZAKOV, Y. G., KARABANOVA, V. P., BURAVIKHIN, V. A., SVETSOV, M. M.,
PYAVCHUK, N. N., and IVANOV, V. A., Irkutsk State Pedagogical Institute

"Effect of Elastic Stresses on Critical Fields of Thin Ferronickel Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 4, Apr 72, pp 864-866

Abstract: A study was made of the behavior of the coercive force H_c of thin magnetic ferronickel films under the action of stresses, since H_c essentially affects the quasi-static and pulsed remagnetization processes. The value of H_c in most cases is determined by the field of starting boundaries. Thus, dependence of H_c boundaries on the magnitude of elastic stresses in 75% Ni and 25% Fe films of different thicknesses (450, 800 and 1100 Å) was experimentally investigated. The results are discussed by reference to diagrams showing the deformation dependence of the starting field of domain boundaries (H_{st}) and the width of the domain boundary. The dependence of H_{st} on the magnitude of applied stresses can be explained by the character of

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USSR

KAZAKOV, V. G., et al., Fizika Metallov i Metallovedeniye, Vol 33, No 4,
Apr 72, pp 864-866

structural changes of domain boundaries. Three illustrations, six
bibliographic references.

2/2

- 48 -

USSR

UDC 669.1:539.216.2:621.785.3:538.65

LITVINTSEV, V. V., DOMYSHEV, V. A., and KAZAKOV, V. G., Irkutsk Pedagogical Institute

"Influence of Annealing on the Magnetoelastic Characteristics of Iron-Nickel Films"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 1077-1079

Abstract: Results are presented of an investigation of the influence of annealing on saturation magnetostriction λ_s , the magnetoelastic parameter n , and the Young modulus E of films of compositions of about 20% Ni-Fe and about 50% Ni-Fe. Comparison of data for the two compositions before and after annealing indicates that the changes in magnetoelastic properties are determined by phase conversions.

1/1

USSR

UDC 538.2

BURAVIKHIN, V. A., KARASOV, P. I., KAZAKOV, V. G., and ANUFRIYEV, V. S.,
Irkutsk Pedagogical Institute

"Effect of Stresses on Pulsed Remagnetization of Thin Nickel-Iron Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 4, Apr 71, pp 739-744

Abstract: The effect of elastic stresses on the remagnetization time (τ), the switching factor, and the change in character of pulsed remagnetization processes was experimentally investigated by a method in which the stress intensity could be varied continuously. The remagnetization was carried out on 20% Fe-80% Ni films $\sim 1500 \text{ \AA}$ thick by a constant amplitude value of the remagnetizing impulse (H_S) and various strain values (ϵ). The results are analyzed by reference to oscillograms of the longitudinal signal of remagnetization, the domain structure of the investigated film, and diagrams showing effects of stresses and $1/\tau$ dependences on H_S at various ϵ . Six figures, seven bibliographic references.

1/1

USSR

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UDC 669.1:519.116.1:10-119
KAZAKOV, V. G., SURAVIKHIN, V. A., SLEPCHOV, A. G., and SVETLOV, A. I., Institute
Pedagogical Institute; Moscow State University named M. V. Lomonosov

"Influence of Elastic Stresses on Slipping at Interdomain Boundaries in Iron-
Nickel Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 2, Aug 79, pp 344-350

Abstract: The slipping rate is studied at interdomain boundaries in iron-nickel
films as a function of the elastic stresses applied. It is established that
stresses resulting in an increase in H_k of the films lead to a shift in the
curves $V(H_k)$ where $H_k = \text{const}$ in the area of high values of the H_k fields.
Both the curves of equal velocities and the critical curves of the start field
of the boundary correspond in corrected coordinates under all loads.

1/1

USSR

UDC 546.17'27'28:539.4

SAMSONOV, G. V., KAZAKOV, V. K., GORODETSKIY, S. S., and KISLYY, P. S.,
Institute of Problems of Material Sciences, Academy of Sciences UkrSSR

"Mechanical Properties of Nitride-Oxide Materials in the System Al_2O_3 -
 Si_3N_4 "

Kiev, Poroshkovaya Metallurgiya, No 2, Feb 74, pp 60-63

Abstract: The dependence of mechanical properties of materials in the system Al_2O_3 - Si_3N_4 on composition, sintering temperature and test temperature was studied. The nitride-oxide materials were produced by pressing with subsequent sintering in a medium of nitrogen. Silicon dioxide, apparently present in the form of a fine film on the surface of the silicon nitride particles plays a significant role in sintering and, interacting with the aluminum oxide, forms mullite, which activates the sintering process. The addition of titanium dioxide to the aluminum oxide also activates sintering. The strength characteristics of substances in the system were studied at 20 and 1000° C. The strength of the materials decreases with increasing Al_2O_3 content. The optimal sintering temperatures are determined for the production of materials with maximum strength.

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USSR-

UDC 621.791:539.378:061.3

MASHKOVA, N. A., and KAZAKOV, V. N., Engineers

"VII All-Union Scientific-Technical Conference on Diffusion Welding in a Vacuum"

Moscow, Svarochnoye Proizvodstvo, No 7, Jul 1972, pp 60-61

Abstract: The VII All-Union Conference on diffusion welding was held in Moscow 25-27 January, 1972. The conference was attended by some 500 representatives of various cities of the country, as well as specialists from the GDR, Czechoslovakia, Poland, and Yugoslavia. Over 60 reports were heard on problems of joining of heat resistant, refractory, and porous metals and alloys, as well as nonmetallic materials such as graphite, sapphire, glass, and ceramics with metals. The Deputy Minister for Higher and Specialized Secondary Education of the RSFSR, Candidate of Technical Sciences A. M. Kutepov, opened the conference, and noted that the method of diffusion joining of metallic and nonmetallic materials is being ever-more widely used in various branches of the national economy. Over 500 organizations and enterprises are using diffusion welding in a vacuum, joining over 400 different pairs of materials. Subjects covered by reports heard at the conference included: the contemporary status and problems of diffusion welding; the

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SSR.

MASHKOVA, N. A. and KAZAKOV, V. N., Svarochnoye Proizvodstvo, No 7, Jul 72, pp 60-61
electron mechanism of interaction during diffusion welding of refractory metals; development of the stage of volumetric interaction during diffusion welding of dissimilar materials; the significance of surface energy in the formation of joints by diffusion welding; problems of the mechanism of formation of joints for diffusion welding of similar metals; the influence of surface diffusion on mass transfer during diffusion welding; the influence of technological parameters of diffusion welding on diffusion processes in the contact zone; the properties of bimetallic joints between stainless steel and electrolytic nickel; the influence of the temperature of diffusion welding on changes in the boundary zone of the bimetal; diffusion metallurgy as a new method of producing composite materials; improvement of the vacuum-mechanical characteristics of structural materials by heat treatment in a vacuum; problems of the theory and technology of joining of nonmetallic materials with metals; production of metal ceramic insulators; diffusion intergrowth of copper with aluminum alloys over large surfaces; manufacture of cutting tools and stamps by diffusion welding in a vacuum; and the experience gained in diffusion-vacuum welding of various specific products. The conference discussed the reports heard and adopted a resolution directed toward further development of science and technology in the area of diffusion-vacuum welding, and approved a plan for scientific research, planning-design, and technological work for 1972-1975.

2/2

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1/2 019

TITLE--MICROELECTRODE ANALYSIS OF NEURONAL ORGANIZATION OF THE ORBITAL
CORTEX IN CATS -U- UNCLASSIFIED PROCESSING DATE--23OCT70
AUTHOR--KAZAKOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 3, PP
585-592
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NERVOUS SYSTEM, NEUROANATOMY, ELECTROPHYSIOLOGY, SENSORY
PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1910

STEP NO--UR/0247/70/020/003/0585/0592

CIRC ACCESSION NO--AP0120566

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120566

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. REACTIONS OF 118 NEURONS OF THE ORBITAL CORTEX TO STIMULATIONS OF THE LINGUAL, BRACHIAL, SCIATIC AND BAGAL NERVES, AS WELL AS OF THE TONGUE, SKIN ON THE EXTREMITIES, AND THE PADS OF THE FINGERS ON THE PAWS WERE STUDIED IN ACUTE EXPERIMENTS ON CATS UNDER SLIGHT NEMBUTAL (45 MG-KG) OR NEMBUTAL-CHLORALOSE (40 MG-KG PLUS 15-20 MG-KG) ANAESTHESIA. THREE GROUPS OF UNITS WERE SINGLED OUT: THOSE RESPONDING WITH EXCITATION, WITH PRIMARY INHIBITION AND NON RESPONSIVE. IN THE FIRST GROUP WHICH MAKES UP THE MAJORITY OF THE INVESTIGATED UNITS (65.2PERCENT), THERE ARE TWO TYPES OF CELLS, SHORT (7 TO 30 MSEC) AND LONG LATENT (OVER 40 MSES). THE FORMER ARE MORE STABLE AS COMPARED WITH THE LATTER, BOTH IN NUMBER AND THE PROBABILITY OF EMERGENCE OF EVOKED IMPULSES. THE CONVERGENCE OF IMPULSES OF DIFFERENT MODALITIES WERE STUDIED ON 61 NEURONS: 36.7PERCENT WERE MONO AND 63.4PERCENT, POLYSENSORY. THE FORMER WERE LOCATED PRIMARILY IN THE PROJECTION ZONES OF THE CORRESPONDING AFFERENT SYSTEMS, AND THE LATTER THROUGHOUT THE ORBITAL CORTEX. MANY POLYSENSORY UNITS RESPONDED TO DIFFERENT PERIPHERAL STIMULI WITH REACTIONS NOT ABSOLUTELY IDENTICAL. THIS TESTIFIES TO THE EXISTENCE OF AN INTEGRATIVE MECHANISM (BESIDES THE SUBCORTICAL) DIRECTLY IN THE ASSOCIATIVE CORTEX. FACILITY: CHAIR OF NORMAL PHYSIOLOGY, PRIGOV MEDICAL INSTITUTE, VINNITSA.

UNCLASSIFIED

Radiation Chemistry

USSR

UDC 535.379

PARSHIN, G. S., BULGAKOV, R. G., KAZAKOV, V. P., and DMITRIYEVA, YE. V.,
Institute of the Chemistry, Bashkir Branch, Academy of Sciences USSR

"Chemiluminescence of Uranyl in Concentrated Sulfuric Acid, Produced by
Ozone"

Moscow, Khimiya Vysokikh Energiy, Vol 6, No 6, Nov-Dec 72, pp 498-501

Abstract: Chemiluminescence of UO_2^{2+} solutions in concentrated sulfuric acid caused by ozone was studied. Chemiluminescence occurs as a result of ozone breakdown on the reaction vessel walls. Uranyl ions do not catalyze this breakdown. On the basis of the results obtained from the determination of the spectral range of luminescence it was concluded that oxygen and uranyl act as the emitters of chemiluminescence. It was established that processes responsible for the luminescence are determined to a great extent by the reaction vessel walls.

USSR

UDCSI:155.001.57:681.3.06

ZLATKIS, V. M., KAZAKOV, V. S., KUCHUGANOV, V. N., LOSEV, I. R., MOCHENOV, S. V.

"Image Input-Output Device for Minsk-1 Computer"

Avtomat. Ustroystva Ucheta i Kontrolya, [Automatic Accounting and Control Devices--Collection of Works], No 6, Izhevsk, 1970, pp 164-174, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V682).

Translation: Problems are studied of creating and operating image input-output devices for small computers. The device is based on the FTA-PM phototelegraph apparatus with slight modifications and practically no modifications to the Minsk-1 computer. The input of an image is performed from a sheet 220 mm in width with unlimited length, and the output in onto electrochemical paper. The resolving capacity of the apparatus is 3-4 lines per mm, the operating speed is 120 lines per minute. Operation is performed at a carrier frequency of 1,900 Hz. Input and output of the image is performed by sectors 64 x 7 mm or 128 x 14 mm in size with resolution into 250 x 31 elements, with brightness quantized to [single-digit number eligible--Er] levels. A block diagram and functional diagram of the device are presented and the operation of the individual units is described. It is noted that this device has been used for successful operation of algorithms for recognition of printed characteristics, algorithms for classification of complex images according to their skeletal outline have been studied, a method of probabilistic coding of halftone images has been tested and experiments have been performed on the separation of con-

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USSR

UDC51:155.001.57:681.3.06

ZLATKIS, V. M., KAZAKOV, V. S., KUCHUGANOV, V. N., LOSEV, I. R., MOCHENOV, S. V.,
Avtomat. Ustroystva Ucheta I Kontrolya, No 6, Izhevsk, 1970, pp 164-174.

tours of images from photographic portraits of people.

KAZAKOV, Ye. A.

TECHNICAL TRANSLATION

PSIC-RT-13- 340-12

ENGLISH TITLE: Operational Characteristics of Type Beta-1 and Beta-2 Isotopic Thermoelectric Generators

FOREIGN TITLE: Эксплуатационные характеристики Изотопных Термоэлектрических Генераторов Типа "Beta-1" и "Beta-2"

AUTHOR: G. M. Yradkin, V. M. Kodynkov, A. I. Buzsizin, N. P. Kozlov, Ye. A. Kazakov

SOURCE: Radiatsionnaya Tekhnika, Tludy, Issue 4, All-Union Scientific Research Institute for Radiation Technology, Atomizdat, Moscow, 1970.

Translated for PSIC by Eric Peabody, Leo Kanner

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USSR

UDC 621.362.2

FRADKIN, G. M., KODYUKOV, V. M., RAGOZINSKIY, A. I., KOROTKOV, N. P., KAZAKOV, Ye. A.

"Operational Characteristics of Type 'Beta-1' and (Beta-2' Isotopic Thermoelectric Generators"

Tr. Vses. n.-i. in-ta radiats. tekhn. (Works of the All-Union Scientific Research Institute of Radiation Technology), 1970, vyp. 4, pp 351-359 (from RZh-Elektrotekhnika i energetika, No 9, Sep 70, Abstract No 9A150)

Translation: The "Beta-1" and "Beta-2" experimental isotopic thermoelectric generators are designed for supplying electric power to ARMS-N automatic radionuclide stations. The basic parameters of the "Beta-2" are given in the accompanying table. The generator is operationally reliable. The service life is set at five years or more. Eight illustrations, bibliography of two titles.

Abstract includes table on p A-20: Наполнитель = filler; Аргон = argon;

$T_{\text{окр}}$ = ambient temperature; b = volts; см = watts; $Z_{\text{вн}}$, см = internal impedance, ohms; $R_{\text{н}}$, см = load resistance, ohms. Ксенон = Xenon

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1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECT OF SULFHYDRYL GROUPS AND DISULFIDE BONDS ON THE QUALITY OF
THE FLOUR FROM DIFFERENT STRAINS OF WHEAT -U-
AUTHOR--(02)--ZKAHAROVA, S.A., KAZAKOV, YE.D.

COUNTRY OF INFO--USSR

SOURCE--PRIKL. BIOKHM. MIKROBIOL. 1970, 6(2), 127-32

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--WHEAT, BPROCESSED PLANT PRODUCT, PROTEIN, FOOD TECHNOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/1997

STEP NO--UR/0411/70/006/002/0127/0132

CIRC ACCESSION NO--AP0127392

IMP: A T T Y I E R

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127392

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FLOUR ISOLATED FROM STRONG (BEZOSTAYA 1) AND WEAK (ALBIDUM 43) WHEAT KERNELS IN 1967 WAS TREATED BY VARIOUS HYDROTHERMAL PROCEDURES (HEATING, COOLING, AND STEAM). THE MIXING ABILITY OF FLOUR FROM STRONG WHEAT GRAINS (THE ABILITY TO INCREASE BAKING STRAIN OF THE FLOUR FROM WEAK WHEAT) DEPENDED DIRECTLY ON THE RATIO OF SS TO SH GROUPS AND NOT ON THE TOTAL AMT. OF THESE GROUPS IN THE FLOUR FROM STRONG WHEAT STRAINS. DIRECT HYDROTHERMAL TREATMENT OF THE KERNELS BEFORE MILLING INCREASED THE BAKING VALUE OF THE FLOUR IN BOTH TYPES OF WHEAT. NO ADDITIVE PROPERTIES WERE OBSD. DURING MIXING OF FLOUR FROM BOTH WEAK AND STRONG WHEAT KERNELS. THE HYDRATION CAPACITY OF GLUTEN FROM ALBIDUM 43 WHEAT FLOUR INCREASED DURING HYDROTHERMAL TREATMENT. GLUTEN ELASTICITY MEASURED ON THE PEK 3A SCALE DECREASED IN ALL WHEAT STRAINS DURING HYDROTHERMIC TREATMENT.

FACILITY: MOSK. TEKHNOL. INST. FOOD IND., MOSCOW, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--SYNTHESIS OF ALKYL SALICYLATE ADDITIVES BASED ON P-CRESOL -U-

AUTHOR--(05)--MONASTYRSKIY, V.N., TSVETKOV, O.N., DMITRIYEVA, N.A., KAZAKOV,
YE.I., KURENEV, K.D.
COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(3), 17-19

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--SALICYLATE, ALKYLATION, CRESOL, PETROLEUM FRACTION, CHEMICAL
SYNTHESIS, ANTIOXIDANT ADDITIVE, DETERGENT ADDITIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1491

STEP NO--UR/0065/70/015/003/0017/0019

CIRC ACCESSION NO--AP0112485

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AP0112485
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDITIVES, IMPARTING HIGH
DETERGENT, ANTIOXIDANT, AND ANTISCALING PROPERTIES TO OILS, WERE PREPD.
BY ALKYLATING P,CRESOL WITH AN OLEFIN FRACTION B. 240-320DEGREES,
OBTAINED BY WAX CRACKING, YIELDING 63.6PERCENT ALKYL,P,CRESOL. THE
LATTER WAS CARBOXYLATED TO OBTAIN THE ALKYL SALICYLIC ACID, WHICH WAS
TREATED WITH CA(OH) SUB2 TO GIVE THE ADDITIVE.

UNCLASSIFIED

Ion Exchange

USSR

UDC 661.183.123.2

KAZAKOV, Ye. V., KOTOV, S. D., OVCHINNIKOVA, N. A.

"Synthesis of Organoferrocyanide Ion-Exchange Resins"

Moscow, Khimicheskaya Promyshlennost', No 1, 1973, pp 12-14

Abstract: A study was made of the synthesis of new ion exchange resins -- organoferrocyanides -- characterized by high selectivity with respect to molecular iodine and ions of the heavy alkali metals. With an increase in the capacity of the unit, the production cost dropped significantly.

The described process includes the following steps: preparation of the initial solutions (dissolving the crystalline salts), preparation of the anion exchange resin (screening out dust and swelling in water), alternate impregnation of the resin with the initial solutions, intermediate flushing of the sorbent with water, and washing the product to remove finely disperse fractions. The experience in operating the described unit shows that the process as a whole is characterized by the magnitude of the resin charge in the reactor column and the time of alternate impregnation of the resin with the initial solutions. The minimum cost is achieved for maximum charge.

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USSR

KAZAKOV, Ye. V., et al., Khimicheskaya Promyshlennost', No 1, 1973, pp 12-14

The basic structural materials used were carbon steel St. 3 and alkali and acid resistant steel Kh18N10T.

2/2

- 5 -

Ion Exchange

USSR

UDC 541.183.12

KAZAKOV, YE. V., KOZHINA, I. I., KARPOVA, I. F. (Deceased)

"Ion-Exchange Capacity of Copper Ferrocyanides"

Leningrad, Vestnik Leningradskogo universiteta, No 10, Fizika i khimiya, No 2, May 71, pp 131-137

Abstract: The purpose of this investigation was to determine the theoretical total ion-exchange capacity of various copper ferrocyanide compounds as a function of composition and structure and to compare the theoretically rated total exchange capacity with the experimental values derived for each individual compound. Chemical and X-ray phase analyses indicate that both the composition and structure closely depend on the method and conditions of synthesis. Copper ferrocyanides are semi-functional weakly acid cationites with a rather low exchange capacity. The theoretical total exchange capacity of the experimental compounds was calculated on the basis of the chemical analytical data and the equivalent weights of ferrocyanide sorbents. The comparison of the theoretical total exchange capacity with the experimental

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USSR

KAZAKOV, YE. V., et al, Vestnik Leningradskogo universiteta,
No 10, Fizika i khimiya, No 2, May 71, pp 131-137

results indicate that the experimental values are much lower than
the theoretically rated capacities and cannot be approximated to
the upper limit without significant structural changes in the
ferrocyanide compounds.

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- 28 -

USSR

UDC 621.791.856.3:546.821

ISHTYKOV, Yu. V., ~~KAZAKOV, Yu. V.~~, and AKSENOV, N. A. (Kuybushev)

"Tungsten-Arc Welding of Titanium at Reduced Gas Pressure in the Chamber"

Kiev, Avtomaticheskaya svarka, No 3, Mar 72, pp 42-43

Abstract: The extremely large amounts of argon consumed by arc welding in a controlled atmosphere can be reduced by lowering the pressure in the chamber. According to calculations, a decrease in pressure to 10-20 mm Hg reduces the argon rate to a fraction. This promotes degassing of the weldpool and removal of oxides and contaminants both from the surface and the inner layers of the metal, which eventually results in a higher quality of welds. Tungsten-arc welding entails certain difficulties related to arc-striking and arcing in a low-pressure chamber. Described here is an experiment involving tungsten-arc pulsed and continuous welding of OT4 titanium alloy in a controlled atmosphere at pressures of 760-1 mm Hg. The process is shown to be economically effective for automatic welding. Curves are shown to demonstrate the effect of the arc length on both welding current and arc voltage at various argon pressures in the chamber. (3 illustrations, 2 tables, 2 bibliographic references)

1/1

USSR

UDC 621.791.753.042.93.01.024.2:669.245

KAZAKOV, YU. V., Engineer, TOSHCHEV, A. M., Engineer, BELRN'KIY, A. M.,
Candidate of Technical Sciences, KRECHETOV, A. D., Engineer, and SAMOKHVALOV,
O. A., Engineer

"Structure and Properties of Joints Obtained by Pulse Arc Welding of Thin-
Walled Nickel Alloy Parts"

Moscow, Svarochnoye Proizvodstvo, No 4, Apr 71, pp 35-36

Abstract: Results are presented of comparative studies of the structure and properties of welded joints obtained in welding EP199 alloy and Ep222 steel 1 to 2 mm thick by a continuous and pulsed arc in an argon atmosphere with a nonconsumable electrode. It is shown that pulsed arc welding makes it possible to improve weld formation and the mechanical properties of welded joints of EP199 alloy and EP222 steel.

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USSR

UDC: 621.791.75:669.715

KAZAKOV, Yu. V., KRECHETOV, A. D., Kuybyshev, BELEN'KIY, A. M., and
TOSHCHEV, A. M., Kazan'

"Characteristics of Arc Welding Aluminum Alloy Parts Differing in Gage"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 70, pp 51-53

Abstract: The conditions for shaping welds of aluminum alloys of difference gages are much more complex than those for steel. The intensive heat transfer to the mass of a heavy aluminum part requires a considerable increase in linear welding energy. The shielding action of the gap markedly weakens the heat transfer from the edge of the thin part. Quality joints of parts of different gages may be produced by either limiting or completely eliminating the direct action of the arc on the thin edge. The simplest joint meeting this condition is an edge joint. A new technology of welding is described using a shielding shoulder to produce a lap joint. It is based on a shoulder made on the heavy-gage part, with the height of the shoulder greater than the length of the arc. The shoulder protects the thin edge from the direct action of the arc. The thin edge is fused by

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USSR

KAZAKOV, Yu. V., et al, Avtomaticheskaya Svarka, No11, Nov 70, pp 51-53

the heat given off by the molten metal of the shoulder. Various types of shielding shoulders are described.

2/2

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--AUTOMATIC WELDING OF THIN SECTION ALUMINUM CONNECTING PIPES -U-
AUTHOR--(03)-ZAGORUYKO, B.G., KAZAKOV, YU.V., GANELIN, D.N.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO 3, 1970, PP 20-21
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--ALUMINUM ALLOY, PULSED VIBRATION ARC WELDING, ALLOY
DESIGNATION, ARGON GAS WELDING, METAL TUBE, METAL PIPE, PIPE WELDING,
AUTOMATIC WELDING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1311 STEP NO--UR/0135/70/000/003/0020/0021
CIRC ACCESSION NO--AP0123270
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123270

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TECHNIQUE HAS BEEN DEVELOPED FOR MANUFACTURING CONNECTING PIPES FROM AM66 ALUMINUM ALLOY WITH USE OF THE AUTOMATIC ARGON ARC PULSED WELDING INSTEAD OF A MANUAL ARGON ARC WELDING.

UNCLASSIFIED

USSR

UDC 669.14.018.8

SVISTUNOVA, T. V., KAZAKOVA, G. V., ANDRUSHOVA, N. V., and
CHERMENSKAYA, N. F., Central Scientific Research Institute of
Ferrous Metallurgy imeni I. P. Bardin

"Electrochemical Behavior of Alloys Containing Chromium, Nickel,
and Molybdenum"

Moscow, Zashchita Metallov, Vol 7, No 6, Nov-Dec 71, pp 695-698

Abstract: The electrochemical behavior of alloys containing chromium, nickel, and molybdenum, of the system 15% Cr-15% Mo (OOKh15N7OM15, OOKh15N65M16V (EP-567), and Kh15N55M25V (EP-375) was investigated in a wide potential interval, depending on the content of C, Si, Fe, and W in the alloy and also on conditions of heat treatment. Diagrams show potentiokinetic polarization curves of the investigated alloys and the anode current dependence on the potential for the third alloy after inducing heating, both in 30% H₂SO₄ at 90°. The first alloy was found to possess the highest corrosion resistance, the third alloy the lowest. With potentials more positive than 0.3 v, potentiostatic curves of Cr-Ni-Mo alloys show an activation zone related to the presence of selectively etching excess phases: the μ -phase in the (EP-567) alloy and carbides of MgC-type and intermetallic phases of the μ -type in both other alloys. Two illustr., two tables, four biblio. refs.

1/1

Corrosion

USSR

UDC 669.14.018.841.001.5

ANDRUSHOVA, N. V., KAZAKOVA, G. V., SVISTUNOVA, T. V., and
CHERMENSKAYA, N. F.

"Influence of Chromium and Molybdenum on Electrochemical and Corrosion Behavior
of Ni-Cr-Mo Alloys"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 141-145

Translation: The corrosion and electrochemical behavior of nickel-chromium-
molybdenum alloys is studied in 30% H_2SO_4 at 90°C and 10% HCl at 20°C, depending
on chromium and molybdenum content.

It is demonstrated that alloying of a nickel alloy with 15% Mo and up to
25% Cr significantly increases corrosion resistance throughout the entire range
of potentials studied.

Molybdenum (>10%) improves the corrosion resistance of the nickel alloy with
10% Cr in reducing media and worsens it in oxidizing media. 2 figures; 9 biblio.
refs.

1/1

Steels

UDC: 621.742.4:66.046.51:662.741

3

SIDOROV, Yu. I., BAMBULEVICH, V. B., STARTSEV, V. A., KALEYSEN, Yu. N.,
KAZAKOVA, I. I., ZONOV, V. Ye., and USRIKHIN, P. V., Ural Polytechnic
Institute

"Surface Alloying of Steel Castings With Boron"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 8, 1970,
pp 132-134

Abstract: A method of surface alloying of steel castings with boron regenerated from dehydrated borax ($\text{Na}_2\text{B}_4\text{O}_7$) in the process of filling the mold is discussed. The reducing agents are aluminum, calcium, and silicon. The mechanism of boron reduction from borax comprises two stages: a) decomposition of borax into Na_2O and B_2O_3 ; b) reduction of boron from its oxides. Data are given on changes in the free energy of boron reduction from borax. The results of a thermodynamics analysis and the study of kinetics regularities indicate silico-calcium and aluminum to be the most efficient reducing agents. The method of surface alloying with boron has been tested on experimental batches of low-carbon steel and has demonstrated its applicability under industrial conditions. The boron content on the surface of the casting was 0.5 to 0.7% and at a depth of 15 mm about 0.008 to 0.009%. The wear resistance of surface-alloyed parts was found to be two to three times that of ordinary parts.

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USSR

K
UDC: 621.741.3

SIDOROV, YU. I., UMRIKHIN, P. V., STARTSEV, V. A., and KAZAKOVA, I. I.

"Specifics of Physical-Chemical Processes During Surface Alloying of Steel Castings with Vanadium"

Izv. VUZ, Chernaya Metallurgiya, No 6, 1970, pp 125-127

Abstract: The physical and chemical processes occurring during surface alloying of steel castings with vanadium, reduced from vanadium-containing converter slag by silicon, calcium, and aluminum, were investigated. The slag was included as part of a paint applied to the surface of the casting mold. Production tests showed that the vanadium can penetrate 40 mm into the casting and can increase wear resistance by 1.5 times. One illustration; two tables; three biblio. refs.

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1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECTIVENESS OF THE SEPARATE AND COMBINED USE OF MINERAL
FERTILIZERS AND HERBICIDES ON YOUNG CORN CROPS IN WESTERN SIBERIA -U-
AUTHOR--KAZAKOVA, I.P.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(4), 295-7

DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREAL CROP, MINERAL FERTILIZER, HERBICIDE, AGRICULTURE CROP
YIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/0024

STEP NO--UR/0394/70/008/004/0295/0297

CIRC ACCESSION NO--AP0137223

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137223

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF SEP. AND COMBINED USE OF N-P-K FERTILIZERS AND HERBICIDES ON GREEN MATTER PRODUCTION OF CORN GROWN ON VERY WEEDY (500-700 WEEDS-M PRIME2), GRAY FOREST AND TURFPODZOLIC SOILS WERE EVALUATED IN 5 YEAR EXPTS. HERBICIDES USED WERE 2,4-D AMINE SALT, APPLIED AS A FOLIAR SPRAY AT 0.75 KG-HA AT THE 3-4 LEAF STAGE, OR SIMAZINE ADDED DIRECTLY TO FERTILIZER APPLIED AT 2 KG-HA. WHEN 2,4-D OR SIMAZINE WITHOUT FERTILIZER WERE USED, WEEDINESS WAS REDUCED AND THE GREEN MATTER PRODUCTION WAS INCREASED COMPARED WITH FERTILIZER ALONE. COMBINED APPLICATION OF FERTILIZER AND 2,4-D OR SIMAZINE INCREASED THE GREEN MATTER PRODUCTION MORE THAN FERTILIZATION ALONE, AND MUCH MORE THAN WITH NO FERTILIZER AND HERBICIDE.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--160CT70
TITLE--INFLUENCE OF THE TEMPERATURE FIELD PROFILE ON THE RELAXATION OF
RESIDUAL STRESSES DURING LOCAL HEATING OF RING SHAPED WELDS -U-
AUTHOR-(05)-PODSTRIGACH, YA.S., GORIACHEVA, Z.I., BURAK, YA.I., BESEDINA,
L.P., KAZAKOVA, L.A.
COUNTRY OF INFO--USSR

SOURCE--FIZIKO KHIMICHESKAIA MEKHANIKA
42-45
DATE PUBLISHED-----70

10. 1, 1970, P

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--RESIDUAL STRESS, METAL RING, THERMAL STRESS, WELD JOINT,
STRESS RELAXATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--1995/0936

STEP NO--UR/0369/70/006/001/0042/0045

CIRC ACCESSION NO--AP0116445

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116445

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE DEPENDENCE OF THERMAL STRESSES ON THE TEMPERATURE FIELD PROFILE DURING LOCAL AXISYMMETRICAL HEATING OF RIGID CYLINDRICAL SHELLS. THIS PROBLEM REDUCES TO THE DETERMINATION OF TEMPERATURE FIELDS WHICH, AT A GIVEN TEMPERATURE LEVEL AND WIDTH OF THE HEATING ZONE, GUARANTEE A RELATIVELY LOW LEVEL OF MAXIMUM STRESSES. AN EXPERIMENTAL STUDY IS MADE OF THE USE OF EXTREMUM TEMPERATURE FIELDS FOR LOCAL STRESS RELIEF OF RING SHAPED WELOS.

FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, FIZIKO MEKHANICHESKII INSTITUT, LVQV, UKRAINIAN SSR.

UNCLASSIFIED

1/2-021
TITLE--THERMOGRAPHIC STUDY OF SOLID HYDROCARBONS OF PROTECTIVE WAXES -U-
AUTHOR--(02)-MARKARYAN, R.A., KAZAKOVA, L.P.
COUNTRY OF INFO--USSR
SOURCE--KHIM. TEKHNOL. TOPL. NASEL 1970, 15(1) 28-30
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PROTECTIVE COATING, WAX, OZONE, RUBBER, MOTOR VEHICLE TIRE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY PELL/FRAML--1992/1516

STEP NO--UR/0065/70/015/001/0028/0030

CIRC ACCESSION NO--AP0112510

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02OCT70

2/2 021
CIRC ACCESSION NO--AP0112510
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE WAXES, USED FOR PROTECTING
TIRES AND RUBBER TECH. ARTICLES AGAINST OZONE CRACKING, WERE COMPLEX
MIXTS. OF VARIOUS MOL. WT. HYDROCARBONS, M. 49.5-75DEGREES, OIL 0.9-1.5,
PARAFFIN NAPHTHENIC FRACTION 94.5-99.0, AROMATICS 1.0-5.0, RESINS
0.5-1.5, HYDROCARBONS REACTING WITH CARBAMIDE 30-87PERCENT.
CHARACTERISTICS OF THE WAXES ARE TABULATED.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CHEMICAL COMPOSITION AND STRUCTURE OF HYDROCARBON COMPONENTS OF
PROTECTIVE WAXES -U-
AUTHOR--(02)-MARKARYAN, R.A., KAZAKOVA, L.P. K
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (3), 14-17
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--PROTECTIVE COATING, WAX, PHYSICAL CHEMISTRY PROPERTY,
HYDROCARBON, CHEMICAL COMPOSITION/(U)ZVI WAX, (U)M WAX, (U)PARAFFIN B
WAX
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/1516 STEP NO--UR/0318/70/000/003/0014/0017
CIRC ACCESSION NO--AP0118503
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118503

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANTILOX, WAXES ZV 1 AND M, AND PARAFFIN B, APPARENTLY EQUIV. IN ANTIOZONANT ACTIVITY, WERE SEPD. BY FRACTIONAL CRYSTN. INTO 10 FRACTIONS WHICH WERE FURTHER SEPD. ON THE BASIS OF UREA COMPLEXING AND WERE CHARACTERIZED AS TO M.P., N PRIME70 SUBD, AND SYMMETRY FACTOR. IMPORTED WAXES, ANTILOX YIELDING 40.7 AND 34.1PERCENT OF FRACTIONS M. IS LESS THAN OR EQUAL TO 45 AND 55-65DEGREES AND WAX M YIELDING 24.0 AND 38.0PERCENT OF FRACTIONS M. 45-50 AND 50-5DEGREES CONSISTED MAINLY OF N AND ISOPARAFFINIC HYDROCARBONS, WHEREAS DOMESTIC WAXES ZV 1 HAVING A NEARLY EVEN M.P. DISTRIBUTION AND PARAFFIN B, YIELDING 22.5 AND 33.5PERCENT FRACTIONS M. 45-50 AND 50-5DEGREES CONSISTED MAINLY OF NAPHTHENIC HYDROCARBONS HAVING BRANCHED SIDE CHAINS AND PARAFFINIC HYDROCARBONS (SIMILAR TO 85PERCENT N PARAFFINS), RESP. FACILITY: MINKHGP IM. GUBKINA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 549.643.574.3

CHISTYAKOVA, M. B., and KAZAKOVA, M. Ye.

"A Find of Carpholite in the USSR"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 6, 21 December 1970, pp 1423-1426

Abstract: Carpholite, a very rare mineral, has been found during a study of the Kent pegmatite deposit in Central Kazakhstan. The carpholite was found on the deposit in shallow cavities of weakly greisenized granite, in greisen bodies, and in the pegmatite. At the Kent deposit the carpholite is formed under more diverse genetic conditions than at other deposits. Up to this time, it had never been observed to occur in pegmatite. 2 figures, 3 tables, 13 bibliographic entries..

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USSR

UDC: 621.372.823.09

KAZAKOVA, N. A. and PERSIKOV, M. V.

"Wave Scattering by a Step in a Circular Multiwave Guide"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1573-1579

Abstract: Since other methods for solving the problem of wave scattering are either awkward or do not give good agreement with experimental results, the authors propose a method in which the elements of the dispersion matrix are represented in the form of stationary functionals of the electric field at the aperture of the junction or step. This method determines, to a sufficient degree of accuracy, the transmission, reflection, and transformation characteristics of the wave. The problem then reduces to the solution of a linear algebraic equation in terms of the desired characteristic. An explanation of the method is given using as an example the problem of finding the dispersion matrix of magnetically symmetrical waves. Analysis of the problem uses a variational device developed to find the coefficient of reflection in a single-wave approximation. The authors express their gratitude to B. Z. Katsenelenbaum for his valuable advice.

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USSR

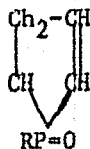
UDC 541.64+547.241

RAFIKOV, S. R., Academician of the Kazakh SSR Academy of Sciences, KAZAKOVA, N. D., D'YACHKOV, G. A., and AGASHKIN, O. V.

"Structure of the Products of Interaction of Aryldichlorophosphines and Divinyl"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 4, 1971, pp 831-833

Abstract: The structure of oxides of unsaturated cyclic phosphines has not been established. This paper presents a study of the conditions of formation of cyclic addition compounds. The structure of the corresponding phosphine oxides is established. The interactions of tolyldichlorophosphine with divinyl are considered, and the infrared and nuclear magnetic resonance spectra of the products of these interactions including unsaturated cyclic phosphine oxide are presented. Analysis of these spectra indicates the following structure



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USSR

UDC 541.64+547.241

RAFIKOV, S. R., KAZAKOVA, N. D., and D'YACHKOV, G. A., Institute of Chemical Sciences, Academy of Sciences, Kazakh SSR

"Kinetics of Copolymerization of Aryldichlorophosphines With Divinyl"

Moscow, Vyssokomolekulyarnyye Soyedineniya, Vol 12, Series A, No 9, Sep 70, pp 2,019-2,024

Abstract: The authors investigate the rate of copolymerization of aryldichlorophosphines with divinyl as a function of the initial composition of the mixture of monomers, the concentration of azo-bis-isobutyric acid dinitrile and the presence of p-benzoquinone. Phenyl, tolyl and dichlorophenyl dichlorophosphines were investigated. It was found that when aryldichlorophosphines are copolymerized with divinyl, the rate of copolymerization depends on the initial composition of the monomer mixture, reaching a maximum with a concentration of 5-10 mol.% aryldichlorophosphines in the monomer mixture. A small quantity of p-benzoquinone accelerates copolymerization of the organophosphorus compounds and divinyl in the presence of azo-bis-isobutyric acid dinitrile, while in large concentrations, p-benzoquinone serves as an effective inhibitor.

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Mechanical Properties

USSR

UDC 669.28'784'296:621.17:621.785.72

KAZAKOVA, N. I., MORGUNOVA, N. N., and KANTOR, M. M., Central Scientific Research Institute for Ferrous Metals, imeni A. A. Baykov

"Influence of Aging on the Temperature Dependence of the Mechanical Properties of Alloys in the System Mo-C-Cr"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1974, pp 22-28

Abstract: The study mentioned in the title was performed using two-phase Mo-C-Zr alloys containing carbon and zirconium in equal quantities of 0.25 at.% and 0.45 at.% (TSM-3 and TSM-5). The processes of aging were studied using the method of measurement of hardness and resistivity, as well as the method of transmission electron microscopy. After hardening, the main difference in the structure of the two alloys is that TSM-5 contains more sectors with large Mo₂C particles on the boundaries and particularly within the grains. After aging, beginning at 1200° C, disperse particles of the new phase begin to appear within the grains. After tempering at 1700-1800° C; the nature of the second phase segregations changes. The plate-shaped segregations are replaced by circular segregations 0.5-1.0 μ in diameter. The structural changes which occur influence the strength and hardness characteristics of the alloys. The temperature dependences of mechanical properties correlate with these structural changes. The extreme of the properties (maximum strength and minimum ductility as well as minimum resistivity) is determined by the

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USSR

KAZAKOVA, N. I., et al., *Metallovedeniye i Termicheskaya Obrabotka Metallov*, No 2, 1974, pp 22-28

aging process. Dispersion hardening is manifested more sharply, the higher the quantity of carbon and zirconium in the alloy. Dispersion hardening is most strongly manifested in TSM-5 in the recrystallized state at 1400° C, and is not observed in the deformed state. Heat treatment (aging) before testing reduces or completely eliminates the dispersion hardening effect characteristics for recrystallized metal. The aging process, determining the form of the temperature dependence of mechanical properties, occurs in Mo-Zr-C and Mo-C alloys in the 900-1800° C interval, finding its maximum at 1600° C. When loads are applied, the temperature maximum of dispersion hardening drops to 1400° C.

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- 40 -

1/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--TWT AND TRWISTRON DESIGN BY THE PHASE PLANE METHOD -U-
AUTHOR--(03)-KAZAKOV, G.T., KAZAKOVA, N.I., SOVETOV, N.M.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO. 5, 1970, PP 993-1002
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--SPACE CHARGE, HARMONIC ANALYSIS, HARMONIC GENERATOR,
MATHEMATIC ANALYSIS, LINEAR EQUATION, INSTRUMENT COMPONENT, TRAVELING
WAVE TUBE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0581 STEP NO--UR/0109/70/000/005/0993/1002
CIRC ACCESSION NO--AP0132750
UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132750

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE PURPOSE OF THIS ARTICLE IS TO DEMONSTRATE HOW THE PHASE PLANE METHOD, DEVELOPED FOR LOW GAIN PARAMETERS AND IDEAL ELECTRON BUNCHING, CAN BE USED FOR ARBITRARY GAIN PARAMETERS AND LESS THAN IDEAL BUNCHING. IT IS FIRST SHOWN THAT THE ELECTRON GROUPING IN THE BEAM IS MORE RELIABLY ESTIMATED BY THE AMPLITUDE RATIO OF THE SPACE CHARGE FIRST HARMONIC THAN BY THE CURRENT AMPLITUDE. AS THE INITIAL EQUATIONS IN THEIR CALCULATIONS, THE AUTHORS USE THE SHORTENED SYSTEM OF LINEAR EQUATIONS ASSUMING LOW ATTENUATION AND NEGLIGIBLE GAIN. THE RESULT OF THE CALCULATION IS A PHASE PLANE EQUATION WHICH PERMITS ANALYSIS OF THE DYNAMICS OF THE SPACE CHARGE AND FIELD INTERACTION IN O-TYPE INSTRUMENTS. AN EQUATION FOR INSTRUMENT EFFICIENCY IS DEVELOPED; THIS FORMULA WAS CHECKED BY ELECTRON COMPUTER AND WAS COMPARED WITH EXPERIMENTS PERFORMED EARLIER FOR AN ERROR OF 1-2PERCENT. THE EQUATIONS DEVELOPED THROUGH USE OF THE PHASE PLANE METHOD ARE APPLIED TO THE TRAVELLING WAVE TUBE AND THE TWISTRON, A PROCEDURE RECOMMENDED BY THE AUTHORS. IN A CONCLUDING APPENDIX, THE AUTHORS SHOW HOW THE SHORTENED SYSTEM OF LINEAR EQUATIONS IS DERIVED.

UNCLASSIFIED

USSR

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UDC: 621.385.632.001.24

KAZAKOV, G. T., KAZAKOVA, N. I., and SOVETOV, N. M.

"TWT and Trwistron Design by the Phase Plane Method"

Moscow, Radiotekhnika i Elektronika, No. 5, 1970, pp 993-1002

Abstract: The purpose of this article is to demonstrate how the phase plane method, developed for low-gain parameters and ideal electron bunching, can be used for arbitrary-gain parameters and less than ideal bunching. It is first shown that the electron grouping in the beam is more reliably estimated by the amplitude ratio of the space charge first harmonic than by the current amplitude. As the initial equations in their calculations, the authors use the shortened system of linear equations assuming low attenuation and negligible gain. The result of the calculation is a phase plane equation which permits analysis of the dynamics of the space charge and field interaction in O-type instruments. An equation for instrument efficiency is developed; this formula was checked by electron computer and was compared with experiments
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USSR

KAZAKOV, G. T., et al, Radiotekhnika i Elektronika, No 5, 1970, pp 993-1002

performed earlier for an error of 1-2%. The equations developed through use of the phase plane method are applied to the traveling wave tube and the twistron, a procedure recommended by the authors. In a concluding appendix, the authors show how the shortened system of linear equations is derived.

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K
USSR

UDC 621.385.632

KAZAKOV, G. T., KAZAKOVA, N. I., KOVALENKO, V. A.

"Some Results of Electrical Simulation of a Traveling-Wave Tube"

V sb. Vopr. elektron. tekhnika (Problems of Electronics Technology--Collection of Works), Saratov, 1970, pp 138-145 (from RZh--Elektronika i yeye primeneniye, No 7, July 1970, Abstract No 7A134)

Translation: A simplification of the equation for a TWT is considered and it is shown that an approximate representation of the present phase of the electrons in the form of a linear initial phase makes it possible to construct an electric model of a TWT. Such models are useful during development of these devices for a quick estimate of the effect of various procedures on the output parameters.
2 ill. 6 ref. O. Sh.

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- 325 -

1/2 013 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--OPTIMUM PROPERTIES OF A ONE PARAMETER ORBITAL CORRECTION OF A
SPACECRAFT -U-
AUTHOR--(02)-PLATONOV, A.K., KAZAKOVA, R.K.
COUNTRY OF INFO--USSR, FRANCE
SOURCE--3RD IFAC SYMPOSIUM ON SPACE CONTROL, TOULOUSE, FRANCE, MARCH 1970,
(SL:2561)
DATE PUBLISHED-----70

SUBJECT AREAS--METHODS AND EQUIPMENT, SPACE TECHNOLOGY
TOPIC TAGS--ORBIT CORRECTION, ERROR

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/1924 STEP NO--FR/0000/70/000/000/0000/0000
CIRC ACCESSION NO--AT0138789

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0138789

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REPORT DEALS WITH THE CHARACTERISTICS OF A ONE PARAMETER ORBITAL CORRECTION AS SOON AS WITH THE EFFECT OF ERRORS OF THE MAGNITUDE AND DIRECTION OF THE CORRECTION IMPULSE TO THE PARAMETERS OF A FLIGHT ORBIT OF A SPACECRAFT. THE MAGNITUDE AND DIRECTION OF THE CORRECTION IMPULSE WHICH PROVIDES MINIMUM EFFECT OF THE ERRORS IN THE ACCOMPLISHMENT OF CORRECTION ARE DETERMINED.

A CRITERION FOR CORRESPONDENCE OF THE OPTIMUM IMPULSE MAGNITUDE CORRECTION TO THE OPTIMUM ERROR EFFECT CORRECTION IS GIVEN. AS AN EXAMPLE THE CHARACTERISTICS OF THE SATELLITE PERIOD CORRECTION AND THE CHARACTERISTICS OF THE CORRECTION OF THE SPACECRAFT RETURN ORBIT PERIGEE ARE CONSIDERED.

FACILITY: SENIOR RESEARCH WORKER INSTITUTE OF APPLIED MATHEMATICS, ACADEMY OF SCIENCES, USSR. FACILITY: RESEARCH WORKER INSTITUTE OF APPLIED MATHEMATICS, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THE OPTIMAL PROPERTIES OF THE SINGLE PARAMETRIC ORBIT CORRECTION OF
A SPACE VEHICLE -U-
AUTHOR--(02)-PLATONOV, A.K., KAZAKOV, R.K.
COUNTRY OF INFO--USSR
SOURCE--AUTOMATIC CONTROL IN SPACE, 3RD I F A C SYMPOSIUM, TOULOUSE,
FRANCE, MARCH 2ND-6TH, 1970
DATE PUBLISHED-----70
SUBJECT AREAS--SPACE TECHNOLOGY
TOPIC TAGS--ORBIT CORRECTION, EARTH SATELLITE ORBIT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/1279 STEP NO--FR/0000/70/000/000/0000/0000
CIRC ACCESSION NO--AT0131735
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0131735

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER DEALS WITH THE CHARACTERISTICS OF A SINGLE PARAMETRIC ORBIT CORRECTION. THE INFLUENCE OF CORRECTIONAL IMPULSE ERRORS ON THE PARAMETERS OF THE SPACE VEHICLE ORBIT IS DISCUSSED. THE VALUE AND DIRECTION OF THE CORRECTIONAL IMPULSE WHICH ARE OPTIMAL WITH RESPECT TO THE INFLUENCE OF THE IMPULSE ERRORS ARE DETERMINED. CRITERIA OF CONGRUENCE FOR CORRECTION WHICH IS OPTIMAL BY IMPULSE VALUE AND OPTIMAL CORRECTION BY THE INFLUENCE OF THE IMPULSE ERRORS ARE DEDUCED. FOR EXAMPLE, THE CHARACTERISTICS OF AN EARTH SATELLITE REVOLUTION PERIOD OPTIMAL CORRECTION AND KENLER'S PERIGEE OPTIMAL CORRECTION ARE CONSIDERED.

UNCLASSIFIED

USSR

UDC 541.49:(546.799.5+546.799.6+546.658)

YELESIN, A. A., ZAITSEV, A. A., KAZAKOVA, S. S., and YAKOVLEV, G. N.

"Complex Formation of Trivalent Americium, Curium, and Promethium Ions With Phosphonoacetic Acid"

Leningrad, Radiokhimiya, Vol 14, No 4, 1972, pp 541-545

Abstract: Dissociation constants were determined for phosphonoacetic acid [PAA] at 25°C and an ionic strength of 0.2 (NH₄ClO₄). By means of the ion exchange method on a cation exchange resin, complex formation of Am³⁺, Cu³⁺ and Pm³⁺ with PAA was investigated. It was shown that in the 1·10⁻³ -- 1·10⁻¹M concentration range of PAA and at pH 2, 3, and 4 all trivalent americium, curium and promethium ions form complexes of the composition [M(H₂A)]²⁺, [M(HA)]⁺ and [M(HA)₂]⁻. Stability constants for these complexes were determined and compared to respective complexes with acetate, phosphate, and methylphosphonic acid ions. The stability of the complexes with single charge PAA anion is similar to the stability of analogous complexes with methylphosphonic acid. Doubly charged ion complexes [M(HA)]⁺ are practically equal in their stability to the acetate complexes [M(A)₂]⁺.

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1/2 018 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--CHARACTERISTICS OF THE RIBOSE CONTAINING COMPONENT OF DNA
PREPARATIONS ISOLATED FROM RAT LIVER MITOCHONDRIA -U-
AUTHOR--(05)--GAYTSKHOKI, V.S., GACHAVA, M.M., KAZAKOVA, T.B., MARKOSYAN,
K.A., RAKHIMBEKQVA, L.S.
COUNTRY OF INFO--USSR
SOURCE--BIOKHIMIYA 1970, 35(2), 336-42
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MITOCHONDRIUM, LIVER, TISSUE PHYSIOLOGY, DNA, CHROMATOGRAPHY,
PHYSICAL CHEMISTRY PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/0282 STEP NO--UR/0218/70/035/002/0336/0342
CIRC ACCESSION NO--AP0135778
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135778

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DNA PREPNS. FROM RAT LIVER MITOCHONDRIA AND MITOCHONDRIAL MEMBRANES CONTAINED A CONSIDERABLE QUANT. OF RNA RESISTANT TO RNASE. TREATMENT OF DNA WITH RNASE I AND POLYNUCLEOTIDE, PHOSPHORYLASE AND HEAT DENATURATION OF DNA FOLLOWED BY RNASE I TREATMENT DID NOT COMPLETELY REMOVE THE BOUND RNA. DURING DNA CHROMATOG. ON METHYLATED ALBUMIN KIESELGUHR COLUMNS PART OF THE RNA IS ELUTED AS A SEP. PEAK, AND THE REMAINDER IS ELUTED WITH THE DNA AND SHOWS SENSITIVITY TO RNASE. DNA IS COMPLETELY REMOVED FROM THE RNA BY CENTRIFUGING THE CHROMATOGRAPHED DNA PREPNS. IN A D. GRADIENT OR BY GEL FILTRATION ON SEPHADEX G 200 FOLLOWING TREATMENT WITH RNASE AND PRONASE. THIS RNA, PARTICULARLY THE LOOSELY BOUND FRACTION SEPD. FROM THE DNA DURING CHROMATOG., POSSESSES TEMPLATE ACTIVITY WHICH SIGNIFICANTLY EXCEEDS THAT OF EQUIV. QUANTS. OF THE TOTAL MITOCHONDRIAL RNA. FACILITY: LAB. BIOCHEM. GENET., INST. EXPTL. MED., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.2:523.532

KURGANOV, R. A., KAZAKOVA, T. V.

"On the Necessity of Accounting for the Distribution of Velocities and Density of the Incident Flux of Meteoric Particles in Predicting Meteoric Propagation of Radio Waves"

V sb. Meteor. rasprostr. radiovoln (Meteoric Propagation of Radio Waves--collection of works), Vyp. 7, Kazan', Kazan' University, 1970, pp 88-97 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A271)

Translation: The diurnal and seasonal variation of fundamental parameters of meteoric propagation of radio waves are calculated for several experimental meteoric transmission paths. A preliminary evaluation has shown the necessity of accounting for the distribution of geocentric velocities of meteoric particles and limitation of reflection time. On the basis of an experiment, an evaluation is made of the extent of the effect of nonhomogeneities in the density distribution of meteoric particles striking the earth. A comparison of the results of calculations with experimental data shows the possibility of predicting the diurnal variation of the parameters of propagation. Four illustrations, bibliography of five titles. N. S.

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USSR

UDC 632.95

MEL'NIKOV, N. N., MEL'NIKOVA, I. A., STONOV, L. D., KAZAKOVA, V. G., and GRABOVSKAYA, A. N.

"A Herbicide"

USSR Author's Certificate No 300143, filed 17 Sep 69, published 5 Oct 71 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N477)

Translation: 2-MeO-4-RNH-6-R'(HO)N-symm-triazines (I) ($R = C_1-C_5$ -alkyl, $R' = C_2-C_4$ -alkyl) are utilized as selective herbicides. Compounds I in a herbicidal dose of 1 kg/hektare in the pregermination stage are harmless to cotton. When used for treatment in the vegetative stage, compounds I with their high specificity for millet, were found to be very toxic for piqueed, corn mayweed, amaranth, wild oats and other weeds.

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1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ANION RADICALS OF NITROAROMATIC COMPOUNDS CONTAINING A
DIFLUOROMETHYLENE GROUP -U-
AUTHOR--(04)-POLENOV, YE.A., KAZAKOVA, V.M., AFANASYEV, YU.N., SYRKIN,
YA.K.
COUNTRY OF INFO--USSR
SOURCE--ZH. STRUKT. KHIM. 1970, 11,1, 142-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--FREE RADICAL, ORGANIC NITRO COMPOUND, FLUORINATED ORGANIC
COMPOUND, METHYLENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0731 STEP NO--UR/0192/70/011/001/0142/0145
CIRC ACCESSION NO--AP0119638
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119638

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE UNPAIRED ELECTRON OF F SUB2 C(NO SUB2 SUB2 TIMES NEGATIVE PRIME (CA 69 IS TO 82188D) WAS DELOCALIZED OVER THE WHOLE MOL. IN ANALOGS OF I IN WHICH THE CF SUB2 AND NO SUB2 MOIETIES ARE SEPD. BY AN AROMATIC RING THE UNPAIRED ELECTRON IS LOCALIZED IN NITRO AROMATIC MOIETY ONLY. DATA OF POLAROGRAPHIC AND EPR ANAL. FOR THE ANION RADICALS OF F SUB2 C(C SUB6 H SUB4 NO SUB2-P) SUB2, PHCF SUB2 C SUB6 H SUB4 NEGATIVE NO SUB2-P, AND HCF SUB2 C SUB6 H SUB4 NO SUB2-P ARE DISCUSSED. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

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